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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/605,497	10/02/2003	David Fries	1372.68.PRC	2496
21901	7590	12/19/2005	EXAMINER	
SMITH & HOPEN PA 15950 BAY VISTA DRIVE SUITE 220 CLEARWATER, FL 33760			PONOMARENKO, NICHOLAS	
			ART UNIT	PAPER NUMBER
			2834	

DATE MAILED: 12/19/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 10/605,497	Applicant(s) FRIES ET AL.	
	Examiner Nicholas Ponomarenko	Art Unit 2834	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 07 November 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 3-13 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 3-13 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 September 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Response to Arguments*

1. Applicant's arguments with respect to claims 3 -13 have been considered but are moot in view of the new ground(s) of rejection.

### *Drawings*

2. The replacement sheet (Fig. 3) was received on September 27, 2005. This drawing is entered and considered.
3. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "actuating" feature (claim 1), the "pump" (claim 5) and the "piezo-chamber" (claim 6) must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.
4. The drawings are objected to under 37 CFR 1.83(b) because they are incomplete. Specifically, Figures 5 and 6 are not clearly drawn with sufficient details, which would relate to the overall device structure in a clear and/or understood manner. Figures 5 and 6 appear as unfinished sketches with unrelated components.
5. The drawings are objected to because:
  1. Neither drawings nor specification explain the combination of the liquid and the gas in the constant volume chamber and how they interact, as is shown on Fig. 3 and 5.
  2. Figure 3 shows the pneumatic circuits and the hydraulic circuits connected to

the mechanical, fluidic and hydraulic loads. Neither drawings nor specification explain what these circuits and loads are or how they receive energy from the claimed "constant volume chamber".

3. It is not clear (Fig.3) how the pneumatic circuit 56 works with the liquid portion of the constant volume chamber?

6. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Specification***

7. The abstract of the disclosure is objected to because the statement "Programmability and sequential actuation are enabled" is not disclosed in the specification. Correction is required. See MPEP § 608.01(b).

8. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

9. The disclosure is objected to because of the following informalities:

1). Paragraph [0011] and [0030] in the specification make a statement that pressure in container increases in accordance with Boyle's law. This statement is in error. Applicant submitted the FAX on June 17, 2005 by Molly Sauter, which argues that Boyle's law is:  $PV=kT$ , or pressure times volumes is equal to a constant times temperature. Applicants are directed to the attached information from Wikipedia about Gas Laws. It teaches that formula  $PV=kT$  is not the Boyle's law but is the Combined Gas Law. The Boyle's law equation is:  $PV= k$ , or pressure times volume equals constant. Appropriate correction is required.

2). Paragraph [0007] of the specification refers to a prior art, which is not provided and is not available to the examiner. Applicants are requested to provide this prior art for examiner's consideration.

3). Paragraph [0034] of the specification makes a statement "The phase change enables a volume expansion", which contradicts prior disclosure statements that the claimed device operates as the "constant volume container".

Appropriate correction is required.

### ***Claim Objections***

10. Claim 1 is objected to because of the following informalities: Claim 1 uses word “chamber”, word “container” and word “reservoir” for the same limitation. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

11. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

12. Claims 3-13 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter, which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The disclosure has number of technical errors, which make device operability questionable. Specifically:

Fig.3 and Fig.5 shows that “constant volume containers” have two fluids – water and gas, but the specification is silent about it, and the claims are not claiming operation of such fluid combination. It is important to note, that operation with the combination of two fluids, liquid and gas, would change completely the physics of the operation of the device.

Figure 3 shows the “pneumatic circuit” 56 and the “hydraulic circuit” 54, operation of which are not disclosed in the specification sufficiently to understand their operation or their structure. Additionally, the “pneumatic circuit” 56 is shown as connected to the pipe between containers 40 and 32 filled with liquid, which makes operation of the “pneumatic circuit” questionable.

It is not disclosed with any degree of certainty what are “mechanical loads 56a”, “fluidic loads 56b” or “pressure driven loads 56c”. One of ordinary skill would not know how to use or make these claimed features.

13. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

14. Claims 3-13 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites the limitation "said energy reservoir" in line 7. There is insufficient antecedent basis for this limitation in the claim.

It is not clear how “actuating said phase change material” is performed. There is insufficient antecedent basis for this limitation in the claim.

Claims 4 -13 are indefinite because they depend on the rejected claim and do not correct the noted problem.

**Conclusion**

15. When the claims are amended, applicant(s) should state in detail where in the original disclosure or in the drawings the amended features find support. **No new matter may be introduced.**

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nicholas Ponomarenko whose telephone number is (571) 272- 2033, Fax: (571) 273-2033, or to his SPE Darren Schuberg – (571) 272-2044.

17. Any inquiry of a general nature or relating to the status of this application should be directed to the Technology Center 2800 Customer Service  
Phone: (571) 272-2815

np  
December 13, 2005



**Nicholas Ponomarenko  
Primary Examiner  
Technology Center 2800**